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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,361	07/25/2003	Lee D. Tice	SYS-P-1120 (8364-89836)	2460
24628	7590	02/03/2005	EXAMINER POLYZOS, FAYE S	
WELSH & KATZ, LTD 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			ART UNIT 2878	PAPER NUMBER

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/627,361	Applicant(s) TICE ET AL.	
	Examiner Faye Polyzos	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-23 and 27-59 is/are allowed.
- 6) ☒ Claim(s) 1-16, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/3/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-16 and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Graham et al (US 6,534,769 B1).

Regarding claim 1, Graham discloses a gas sensor (22) comprising a housing, the housing defining first and second, substantially mirror image portions, the portion about one another along a common plane (152) and are open to one another (106), and a gas inflow portal (102) laterally relative to portions (See Generally Figs. 2-5, col. 6, lines 46-65).

Regarding claims 2-3, Graham discloses the sensor comprising of an inflow portal symmetrically perpendicular to the common plane and the inflow portal symmetrically located relative to the common plane (See Generally Figs. 2-5 and col. 5, lines 61-67).

Regarding claim 4, Graham discloses a gas outflow portal (106) symmetrically located relative to the common plane (152) (See Generally Figs. 2-5 and col. 5, lines 61-67).

Regarding claim 5, Graham discloses the sensor including a filter (106) which overlies the portions (See Generally Figs. 2-5 and col. 6, line 48-56).

Regarding claims 6-7, Graham discloses the filter substantially reduces fluid flow velocity in the portions and of ambient gases in the portions substantially to zero (col. 4, lines 13-23, lines 50-52).

Regarding claims 8-9, Graham discloses each of the portions of the gas sensor include a reflective member (156)(158) that are curved (See Generally Figs. 2-5 and col. 6, line 46-56 and col. 7, lines 3-11).

Regarding claims 10-11, Graham discloses the sensor including a radiant energy source (154) located on the common plane (152) (See Generally Figs. 2-5 and col. 6, line 46-47 and 57-65).

Regarding claims 12-13, Graham discloses the sensor including a first and second sensing elements, one associated with each portion and the sensing elements symmetrically located relative to the common plane (152) (See Generally Figs. 2-5 and col. 6, line 48-56).

Regarding claims 14-16, Graham discloses the sensor where the source directs radiant energy (154) substantially relative to the common plane (152) and in a plane generally perpendicular thereto where the radiant energy crosses the portions with only a single reflection (200) (See Generally Figs. 2-5 and col. 7, line 50-64).

Regarding claim 24, Graham discloses a folded beam, gas sensing chamber comprising at least one curved reflective surface (156), an emitter; at least one sensor of emitted light reflected just once; and first and second optical filters for producing a gas related radiant energy beam (200) and a reference beam (202) (See Generally Fig. 5 and col. 7, lines 3-6 and 50-64).

Regarding claim 25, Graham discloses of a chamber with a housing that has a first and second mirror image regions, sensing and referencing regions (See Generally Fig. 5).

Allowable Subject Matter

3. Claims 17-23 and 27-59 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claim 17, the prior art does not fairly disclose or suggest of a chamber where one gas entry opening is positioned in the chamber such the entering gas will enter into the first light and second light at substantially the same time.

The examiner notes that while it is known in the art for the first and second reflectors of the chamber to focus and reflect IR energy beam from IR source and then reflect an altered IR energy beam to a detector, (see for example --Graham et al -- US 6,534,769 B1-- col. 6, lines 66-67 and col. 7, lines 1-3), the prior art does not fairly suggest the gas entering into the first an second light at substantially the same time.

Regarding independent claim 18, the prior art does not fairly disclose or suggest of a chamber where one gas entry opening is positioned in the chamber such the entering gas will reach both the first and second concave reflective surfaces at substantially the same time.

The examiner notes that while it is known in the art for the first and second reflectors of the chamber to focus and reflect IR energy beam from IR source and then

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reflect an altered IR energy beam to a detector, (see for example -- Graham et al -- US 6,534,769 B1-- col. 6, lines 66-67 and col. 7, lines 1-3), the prior art does not fairly suggest the entering gas reaches both concave reflective surfaces at the same time.

Regarding independent claim 19, the prior art does not fairly disclose or suggest of a chamber where one gas entry opening is positioned in the chamber such that water in the gas will condense substantially equally on both the first concave reflective surface and the second concave reflective surface at substantially the same time.

The examiner notes that while it is known in the art for a gas sensor to comprise of at least one gas entry opening such that the water in the gas can condense within the chamber (see for example -- Graham et al -- US 6,534,769 B1-- col. 4, lines 38-40), the prior art does not fairly suggest the water in the gas to condense equally on both reflective surfaces of the chamber at substantially the same time.

Regarding independent claim 27, the prior art does not fairly disclose or suggest of a gas detector comprising of multiple sensing devices where a portion of a first light ray and a portion of a second light ray are received by the first and second sensing devices.

The examiner notes that while it is known in the art for a gas sensor to comprise multiple reflective concave surfaces to reflect light rays from the emitter and a detector to sense a filtered beam in order to convert the impinging filtered beam to an electrical signal (see for example -- Graham et al -- US 6,534,769 B1-- col. 7, lines 32-

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40), the prior art does not fairly suggest receiving portions of light rays, reflected by the reflective surfaces by multiple sensing devices.

Regarding independent claim 45, the prior art does not fairly disclose or suggest of a gas detector comprising of a gas inflow port to enable inflowing ambient gas to diffuse substantially symmetrically into the portions.

The examiner notes that while it is known in the art the diffusion of inflowing gas into portions of the chamber (see for example -- Graham et al -- US 6,534,769 B1-- Figs. 2-5 and col. 6, lines 66-67 and col. 7, lines 1-3), the prior art does not fairly suggest diffusing the ambient gas substantially symmetrically into the portions.

Regarding independent claim 55, the prior art does not fairly disclose or suggest of a method of gas detection providing inflowing gas sensing and referencing regions at the same time in order to project sensing and referencing beam across sensing and referencing region.

The examiner notes that while it is known in the art of inflowing gas sensing and referencing regions (see for example -- Graham et al -- US 6,534,769 B1-- Figs. 2-5 and col. 6, lines 66-67 and col. 7, lines 1-3), the prior art does not fairly suggest the method of substantially simultaneously inflowing the two regions.

The remaining claims are allowable based on their dependency.

Objection

5. Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding dependent claim 26, the prior art does not disclose or fairly suggest a gas sensor comprising a chamber where the gas to be sensed flows into both sensing and referencing regions substantially simultaneously.

The examiner notes that while it is known in the art for both sensing and referencing portions to sense gas from the gas entry opening of the chamber (see for example -- Graham et al -- US 6,534,769 B1-- col. 6, lines 66-67 and col. 7, lines 1-3), the prior art does not fairly suggest gas being sensed into both regions simultaneously.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Polyzos whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FP


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